10/5186<sup>23</sup>8<sup>4</sup>
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## **AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

## **LISTING OF CLAIMS:**

- 1. (Currently Amended) An ionic conduction material comprising a polymer matrix, at least one ionic species and at least one reinforcing agent, <del>characterized in that</del> wherein:
- the polymer matrix is a solvating polymer optionally having a polar character, a non-solvating polymer carrying acidic ionic groups, or a mixture of a solvating or non-solvating polymer and an aprotic polar liquid;
- the ionic species is either an ionic compound selected from salts and acids, said compound being in solution in the polymer matrix, or an anionic or cationic ionic group fixed by covalent bonding on the polymer, or a combination of the two;
- the reinforcing agent is a cellulosic material or a chitin.
- 2. (Currently Amended) The ionic conduction material as claimed in claim 1, characterized in that wherein the cellulosic material consists is comprised of cellulose single crystals or of cellulose microfibrils.
- 3. (Currently Amended) The ionic conduction material as claimed in claim 1, characterized in that wherein the proportion of reinforcing agent is between 0.5% and 70% by weight.

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4. (Currently Amended) The ionic conduction material as claimed in claim 3, characterized in that wherein the proportion of reinforcing agent is between 1% and

10% by weight.

5. (Currently Amended) The ionic conduction material as claimed in claim 1,

characterized in that wherein the polymer matrix consists is comprised of a

crosslinked or non-crosslinked solvating polymer.

6. (Currently Amended) The ionic conduction material as claimed in claim 5,

characterized in that wherein the solvating polymer carries grafted ionic groups.

7. (Currently Amended) The ionic conduction material as claimed in claim 1,

characterized in that wherein the polymer matrix consists is comprised of a non-

solvating polymer carrying acidic ionic groups.

8. (Currently Amended) The ionic conduction material as claimed in claim 7,

characterized in that wherein the non-solvating polymer carries alkylsulfonic groups

or arylsulfonic groups or perfluorosulfonic groups or perfluoro-carboxylic groups.

9. (Currently Amended) The ionic conduction material as claimed in claim 1,

characterized in that wherein the polymer matrix consists is comprised of a mixture

of solvating or non-solvating polymer and at least one aprotic polar liquid.

- 10. (Currently Amended) The ionic conduction material as claimed in claim 9, eharacterized in that wherein the aprotic polar liquid is selected from the group consisting of linear ethers and cyclic ethers, linear acetals and cyclic acetals, linear carbonates and cyclic carbonates, esters, nitriles, nitrated derivatives, amides, sulfones, sulfolanes, alkyl-sulfamides and partially halogenated hydrocarbons.
- 11. (Currently Amended) The ionic conduction material as claimed in claim 9, characterized in that wherein the polymer is a non-solvating polymer selected from the group consisting of polymers which have polar groups and which comprise units containing at least one heteroatom selected from sulfur, nitrogen, oxygen, phosphorus, boron, chlorine and fluorine.
- 12. (Currently Amended) The ionic conduction material as claimed in claim 1, characterized in that wherein the ionic compound is selected from the group consisting of strong acids and from salts of alkali metals, alkaline-earth metals, transition metals, rare earths, organic cations and organometallic cations of said acids.
- 13. (Currently Amended) The ionic conduction material as claimed in claim
  12, characterized in that wherein the ionic compound is selected from the group
  consisting of perchloric acid, phosphoric acid, perfluoro-sulfonic acids,
  trifluorosulfonylimide acid, tris(perfluorosulfonyl)methane acid, perfluoro-carboxylic
  acids, arylsulfonic acids, perfluoro-sulfonimides and arylsulfonimides, and from salts
  of said acids.

- 14. (Currently Amended) The ionic conduction material as claimed in claim 1, characterized in that it furthermore contains further containing an electronically conductive material and an insertion material.
- 15. (Currently Amended) The ionic conduction material as claimed in claim
  14, characterized in that wherein the electronically conductive material is selected from:
- carbon in the form of a fabric or powder,
- intrinsic electronically conductive polymers,
- mixtures of an intrinsic electronically conductive polymer and acetylene black, or
- polymers with hybrid conduction, that is to say either ionic and or electronic, used on their own or with carbon.
- 16. (Currently Amended) The ionic conduction material as claimed in claim
  14, characterized in that wherein the insertion material is an oxide of a metal selected from cobalt, nickel, manganese, vanadium and titanium, or an iron phosphate or a graphitic compound.
- 17. (Currently Amended) An electrode for a battery, consisting of comprising a composite material, characterized in that wherein the composite material is a material as claimed in one of claims 14 to 16 claim 14.

- 18. (Currently Amended) The ionic conduction material as claimed in claim 1, characterized in that it furthermore contains further containing an electronically conductive material and an active material performing as a catalyst.
- 19. (Currently Amended) The ionic conduction material as claimed in claim
  18, characterized in that wherein the electronically conductive material is selected from:
- carbon in the form of a fabric or powder,
- intrinsic electronically conductive polymers,
- mixtures of an intrinsic electronically conductive polymer and acetylene black, or
- polymers with hybrid conduction, that is to say either ionic and or electronic, used on their own or with carbon.
- 20. (Currently Amended) The ionic conduction material as claimed in claim18, characterized in that wherein the active material is platinum or a platinum alloy.
- 21. (Currently Amended) An electrode for a fuel cell, consisting of comprising a composite material, characterized in that wherein the composite material is a material as claimed in one of claims 18 to 20 claim 18.
- 22. (Currently Amended) An electrolyte for a lithium-polymer battery, in which the negative electrode consists of is comprised of metallic lithium, characterized in that it consists of and a material as claimed in claim 1.

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23. (Currently Amended) The electrolyte for a lithium-polymer battery as

claimed in claim 22, characterized in that wherein the polymer matrix of the ionic

conduction material consists is comprised of an amorphous one-dimensional

copolymer or of an amorphous three-dimensional polyether network.

24. (Currently Amended) An electrolyte for a lithium-polymer battery, in which

the negative electrode consists of lithiated graphite, characterized in that it consists

of and a material as claimed in claim 1.

25. (Currently Amended) The electrolyte for a lithium-polymer battery as

claimed in claim 24, characterized in that wherein the matrix of the ionic conduction

polymer is comprised of a homo- or copolymer of vinylidene fluoride, acrylonitrile,

methacrylonitrile, alkyl acrylate, alkyl methacrylate or ethylene oxide.

26. (Currently Amended) An electrolyte of a membrane fuel cell, characterized

in that it consists comprised of an ionic conduction material as claimed in claim 1.

27. (Currently Amended) The fuel cell electrolyte as claimed in claim 26,

characterized in that wherein the polymer matrix consists is comprised of a non-

solvating, polar or non-polar polymer carrying acidic ionic groups.

28. (Currently Amended) The fuel cell electrolyte as claimed in claim 26,

characterized in that wherein the polymer carries alkylsulfonic groups or arylsulfonic

groups or perfluorosulfonic groups.

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29. (Currently Amended) A solar cell comprising a photoanode and a cathode

separated by electrolyte, the photoanode carrying a conductive glass, characterized

in that wherein the electrolyte is comprised of an ionic conduction material as

claimed in claim 1.

30. (Currently Amended) A supercapacitor consisting comprised of an

electrochemical cell comprising two electrodes separated by an electrolyte,

<del>characterized in that</del> wherein the electrolyte is an ionic conduction material as

claimed in claim 1 in which the ionic compound is a lithium or tetraalkylammonium

salt, or an acid.

31. (Currently Amended) Electrochromic glazing comprising two electrodes

separated by an electrolyte, characterized in that wherein the electrolyte is an ionic

conduction material as claimed in claim 1 in which the ionic compound is an acid.

32. (New) An electrode for a battery, consisting of comprising a composite

material, wherein the composite material is a material as claimed in claim 15.

33. (New) An electrode for a battery, consisting of comprising a composite

material, wherein the composite material is a material as claimed in claim 16.

34. (New) An electrode for a fuel cell, consisting of comprising a composite

material, wherein the composite material is a material as claimed in claim 19.

35. (New) An electrode for a fuel cell, consisting of comprising a composite material, wherein the composite material is a material as claimed in claim 20.